



short communication/kratko priopćenje

A NEW FINDING OF THE SPECIES *BOTRYCHIUM MATRICARIIFOLIUM* (RETZ.) A. BR. EX KOCH (*OPHIOGLOSSACEAE*) IN CROATIA

LJILJANA BOROVEČKI – VOSKA¹, ROKO ČIČMIR² & DUBRAVKO ŠINCEK³

¹Elementary School Đurmanec, Đurmanec bb, 49 225 Đurmanec, Croatia

²Uljanički put 19, 10 000 Zagreb, Croatia

³R. Boškovića 14c, 42 000 Varaždin, Croatia

Borovečki-Voska, Lj., Čičmir, R. & Šincek, D.: A new finding of the species *Botrychium matricariifolium* (Retz.) A. Br. ex Koch (*Ophioglossaceae*) in Croatia. *Nat. Croat.*, Vol. 20, No. 1, 229–232, 2011, Zagreb.

In this short communication a new locality of the species *Botrychium matricariifolium* (Retz.) A. Br. ex Koch in the Risnjak National Park area (Croatia) is reported. Thirty years ago, after this species became extinct on Medvednica mountain, which was the only known locality in Croatia, it got the status of Regionally Extinct taxon (IUCN category RE). The new finding brings this species back to the list of recent national flora.

Key words: *Botrychium matricariifolium*, new locality, Risnjak NP, Croatia

Borovečki-Voska, Lj., Čičmir, R. & Šincek, D.: Novi nalaz vrste *Botrychium matricariifolium* (Retz.) A. Br. ex Koch (*Ophioglossaceae*) u Hrvatskoj. *Nat. Croat.*, Vol. 20, No. 1., 229–232, 2011, Zagreb.

U ovom kratkom priopćenju objavljuje se novo nalazište vrste *Botrychium matricariifolium* (Retz.) A. Br. ex Koch na području NP Risnjak (Hrvatska). Nakon što je ta vrsta prije 30-ak godina izumrla na Medvednici, jedinom poznatom nalazištu u R. Hrvatskoj, dobila je status regionalno izumrla svoje (IUCN kategorija RE). Stoga ovaj novi nalaz vraća tu vrstu na popis recentne nacionalne flore.

Ključne riječi: *Botrychium matricariifolium*, novo nalazište, NP Risnjak, Hrvatska

The daisy-leaf (matricary) grape fern, *Botrychium matricariifolium* (Retz.) A. Br. ex Koch, is distributed in »N., E. & C. Europe, extending to C. France, N. Italy and Albania« (ROTHMALER, 1964). It is rare and/or endangered in many European countries (JOGAN, 2001; LAUBER & WAGNER, 2001; ADLER *et al.*, 1994; PIGNATTI, 1982; HAEUPLER & MUEER, 2000).

This species has the status of Regionally Extinct taxon in the Republic of Croatia (NIKOLIĆ & TOPIĆ, 2005; NIKOLIĆ, T., 2011; ANON., 2009). In fact, in 1972 a few plants were found on Medvednica mountain. The locality was only a few square



Fig. 1. *Botrychium matricariifolium* – habitus

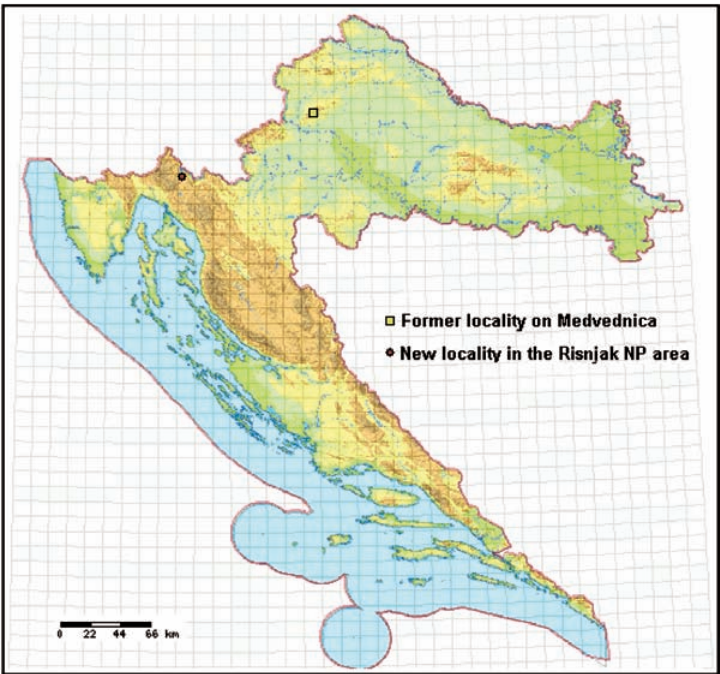


Fig. 2. Localities of the species *Botrychium matricariifolium* in Croatia

meters in area, southeast from Puntijarka peak, at 960 meters a.s.l. Since 1980, nobody has seen them at this place – the habitat was destroyed because people piled up firewood there. This locality was an exclave of the disjunct distribution of this arctic-alpine species in Europe. The daisy-leaf grape fern usually grows on mountain pastures and short grasslands, rarely in beech-fir forests (the alliance *Aremonio-Fagion*), as was the case on Medvednica.

Botrychium matricariifolium is perennial fern which belongs to the family *Ophioglossaceae*, a geophyte, 20 cm tall plant with a short rhizome which produces only one leaf every year. The leaf has a robust petiole, approximately 4 mm broad, and two different portions – one sterile and one fertile. The sterile portion is green, once or twice pinnate, it is short-stalked or nearly sessile. The fertile portion is also short-stalked, two or three times pinnate. Its leaflets of the last row produce spherical, yellow to brown sporangia which open alongside the crack. Sporangia have a lot of equal spores – isospores. They appear in June and July.

Prof. Ljerka Marković, DSc, thoroughly examined the population of *Botrychium matricariifolium* on Medvednica and the results were published in a scientific paper (MARKOVIĆ, 1975). It was interesting that there were quite a lot of plants with anomalies – there were a few sporangia even on the sterile portions of some leaves.

In the first half of July 2010, our team was in the Risnjak NP area and we found a new locality with the daisy-leaf grape fern (BOROVEČKI-VOSKA, 2010). A few dozen plants grow along the pathway from Razloge village to the Kupa river spring (X – 5476931, Y – 5037911). The habitat is at 537 meters a.s.l. in a Dinaric beech-fir forest (as. *Omphalodo-Fagetum* (Tregubov 1957) Marinček *et al.*, 1993). The ground is covered with plant litter. The geological substrate is of siliceous, conglomeratic-sandy rocks from the Permian period (SAVIĆ & DOZERT, 1985).

According to the quantitative criteria (IUCN/SSC, 2010) used to determine whether a taxon is threatened or not, and if threatened, which category of threat on the IUCN Red List it belongs in (Critically Endangered, Endangered or Vulnerable), we propose to move *Botrychium matricariifolium* from the category RE (Regionally Extinct) to the category CR (Critically Endangered) in Croatia. Based on our evaluation, this species complies with the following criteria for the category CR:

1. *Botrychium matricariifolium* is present in only one locality in Croatia and its distribution area is approximately only 500 m² (IUCN Red List Criteria B).
2. The species has a very small population, less than 50 mature individuals (IUCN Red List Criteria D).

Of course, this population of *Botrychium matricariifolium*, currently the only known in Croatia, should be thoroughly examined in the following seasons, as should its habitat.

Received January 30, 2011

REFERENCES:

- ADLER, W., OSWALD, K. & FISCHER, R., 1994: Exkursionsflora von Österreich. Verlag Eugen Ulmer Stuttgart und Wien.
- ANON., 2009: Pravilnik o proglašavanju divljih svojih zaštićenim i strogo zaštićenim. Ministarstvo kulture Republike Hrvatske, Zagreb.

- BOROVEČKI-VOSKA, Lj., 2010: Contribution to the knowledge of the distribution of *Botrychium matricariifolium* (Retz.) A. Br. ex Koch – Field observations. In: Flora Croatica Database. On-Line (<http://hirc.botanic.hr/fcd>). Department of Botany, Faculty of Science, University of Zagreb.
- HAEUPLER, H. & MUEER, T., 2000: Bildatlas der Farn- und Blütenpflanzen Deutschlands. Verlag Eugen Ulmer Stuttgart.
- IUCN Standards and Petitions Subcommittee, 2010: Guidelines for Using the IUCN Red List Categories and Criteria. Version 8.1. Prepared by the Standards and Petitions Subcommittee in March 2010. Downloadable from <http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedList-Guidelines.pdf>
- JOGAN, N., 2001: Gradivo za Atlas flore Slovenije, Center za kartografiju favne in flore, Miklavž na Dravskem polju.
- LAUBER, K. & WAGNER, G., 2001: Flora Helvetica, 3. Aufl., Haupt – Bern.
- MARKOVIĆ, Lj., 1975: *Botrychium matricariifolium* (Retz.) A. Br. ex Koch u flori Hrvatske. Acta Bot. Croat. **34**, 157–158.
- NIKOLIĆ, T. (ur.), 2011: Flora Croatica Database – Red Book. On-Line (<http://hirc.botanic.hr/fcd/CrvenaKnjiga>). Department of Botany, Faculty of Science, University of Zagreb.
- NIKOLIĆ, T. & TOPIĆ, J., 2005: Crvena knjiga vaskularne flore Republike Hrvatske. Ministarstvo kulture, Državni zavod za zaštitu prirode, Republika Hrvatska, Zagreb.
- PIGNATTI, S., 1982: Flora d'Italia, Vol. 1, Edagricole.
- ROTHMALER, W., 1964: *Botrychium* Schwartz. In TUTIN *et al.* Flora Europaea, Vol. 1, 9. Cambridge, At the University Press.
- SAVIĆ, D. & DOZERT, S., 1985: OGK i Tumač za list Delnice L 33–90. Sav. geol. zavod, Beograd.

SAŽETAK

Novi nalaz vrste *Botrychium matricariifolium* (Retz.) A. Br. ex Koch (*Ophioglossaceae*) u Hrvatskoj

Lj. Borovečki-Voska, R. Čičmir & D. Šincek

Vrsta perolisni mjesečinac, *Botrychium matricariifolium* (Retz.) A. Br. ex Koch, u Republici Hrvatskoj ima status regionalno izumrle svojte (NIKOLIĆ & TOPIĆ, 2005). Naime, nekoliko je jedinki perolisnog mjesečinka nađeno 1972. godine na Medvednici na svega nekoliko četvornih metara, jugoistočno od vrha Puntijarka na nadmorskoj visini od 960 m. Na tom jedinom nalazištu u Hrvatskoj nakon 1980. više nije viđen, nakon što je na tom mjestu neko vrijeme odlagano drvo za ogrjev. To je nalazište bilo eksklava disjunktne areala te arкто-alpinske vrste u Europi gdje uglavnom dolazi na planinskim travnjacima, a rjeđe u sklopu bukovo-jelove šume (sveza *Aremonio-Fagion*) kao što je bio slučaj sa staništem na Medvednici.

U radu se objavljuje nalazište vrste perolisnog mjesečinka, *Botrychium matricariifolium*, na području NP Risnjak gdje je u srpnju 2010. godine otkriveno stanište na području sela Razloge u blizini izvora Kupe. Biljke su nađene u sklopu šumske zajednice dinarske bukovo-jelove šume (as. *Omphalodo-Fagetum* (Tregubov 1957) Marinček *et al.* 1993). Nakon što je ta vrsta prije 30-ak godina izumrla na Medvednici, ovaj je novi nalaz vraća na popis recentne nacionalne flore. Također, predlažemo da se toj vrsti, u skladu s kvantitativnim kriterijima za pojedine kategorije rizičnosti od izumiranja (IUCN/SSC 2010), ukine status regionalno izumrle svojte (IUCN kategorija RE) te da se prebaci u kategoriju kritično ugroženih (IUCN kategorija CR).